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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/985,798	11/06/2001	Masaharu Saito	040679-1384	4319
22428	7590	05/17/2004	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			CORRIGAN, JAIME W	
			ART UNIT	PAPER NUMBER
			3748	
DATE MAILED: 05/17/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/985,798

Applicant(s)

SAITO ET AL.

Examiner

Jaime W Corrigan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 5,6,9 and 10 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7,8 and 12-16 is/are allowed.
- 6) ☒ Claim(s) 1-4,11 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the RCE filed on 27 February 2004. Claims 1, 17 have been amended. Claims 5-6, 9-10 are withdrawn. Overall, claims 1-20 are pending in this application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 11, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lichti et al. (PN 6,308,672) in view of legal precedence.

Regarding claim 1 Lichti discloses a drive force transmitter (See Figure 1 (17)) driven by means of a crank shaft (See Abstract) of the internal combustion engine; a cam shaft (See Figure 1 (21)) having an external periphery which is formed with a drive cam for operating a valve (See Abstract) of the internal combustion engine, the cam shaft being so fitted with the drive force transmitter as to rotate the drive force transmitter relative (See Column 2 Lines 39-56) to the cam shaft when so required, the cam shaft being a follower which is rotated with a drive force transmitted from the drive force transmitter (See Abstract); a housing (See Figure 3 (22)) rotating integrally with one of the drive force transmitter and the cam shaft; a vane rotor (See Figure 4 (28)) housed in the housing, and rotating integrally with the other of the drive force transmitter

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and the cam shaft; an advanced angle chamber (See Figure 5 (33)) and a delayed angle chamber (See Figure 5 (35)) disposed in the housing, and rotating the vane rotor with an oil pressure (See Abstract); an oil pressure conveyer (See Figure 3 (14)) communicating to the advanced angle chamber and the delayed angle chamber, the oil pressure conveyer supplying the oil pressure selectively (See Abstract, Column 4 Lines 15-28) to one of the advanced angle chamber and the delayed angle chamber while draining the oil pressure selectively from the other of the advanced angle chamber and the delayed angle chamber; a protrusion shaft (See Figure 3 (The part located between (56) and (46) that touches (46))) formed integrally on at least one of the vane rotor (See Figure 3 (28)) and the housing, the protrusion shaft protruding forward; a target plate (See Figures 1, 3 (46)) mounted on at least the one of the vane rotor (See Figure 3 (28)) and the housing (See Figure 3 (22), (40)), the target plate being formed substantially flat (See Figure 3 (46)) and fitted to the protrusion shaft (See Figure 3 (The part located between (56) and (46) that touches (46))); and a sensor (See Figures 1, 3 (48)) disposed in a vicinity of the target plate, the sensor detecting a rotational angle (See Column 3 Lines 54-58) of the target plate.

Regarding claim 4 Lichti discloses the target plate (See Figure 1 (46)) has an internal periphery and an external periphery, the external periphery facing the sensor and being thinner (See Figure 3 (46)) than the internal periphery.

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Regarding claim 11 Lichti discloses the drive force transmitter is a chain sprocket (See Figure 1 (17)).

Regarding claim 19 Lichti discloses the target plate (See Figures 1, 3 (46)) is a member different from the protrusion shaft (See Figure 3 (The part located between (56) and (46) that touches (46))).

Lichti discloses the claimed invention except for "a protrusion shaft formed integrally on at least one of the vane rotor" etc. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have integrated the protrusion shaft and vane rotor, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lichti in view of legal precedence as applied to claim 1 above, and further in view of legal precedence.

Lichti discloses the invention as recited in claim 1 above and further discloses the target plate (See Figure 3 (46)) is fixed to the protrusion shaft (See Figure 3 (Not numbered but clearly visible)) through a press fitting.

With regard to the limitation of "through a press fitting", a product by process claim which is rejected over a prior art product that appears to be identical, although

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produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the two. See *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983).

Claims 17, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lichti in view of legal precedence as applied to claim 1 above, and further in view of Magner et al. (PN 5,736,633) in view of Lichti et al. (PN 6,308,672).

Magner discloses a plurality of detector protrusions (See Figure 1a (14) (16), ((18), (20)) protruding radially outward and disposed at regular (See Figure 1a) angular intervals circumferentially on the target plate (See Figure 2a (10)), the detector protrusions being substantially equal (See Figure 1a) in width, each two of the detector protrusions defining therebetween a first pulse interval (See Figure 1a (28), (30)) of a detection signal, and one index protrusion (See Figure 1a (12)) protruding radially outward and disposed between two (See Figure 1a (14), (20)) of the detector protrusions that are predetermined and adjacent to the one index protrusion, the one index protrusion being substantially equal in width (See Figure 1a (12), (14), (20)) to any one of the detector protrusions, the one index protrusion and the any one of the detector protrusions defining therebetween a second pulse interval (See Figure 1a (30), (36)) of the detection signal, the second pulse interval being shorter than the first pulse interval (See Figure 1a (28), (30), (26)).

Magner fails to disclose a flat target plate fixed to the protrusion shaft and the target plate is a member different from the protrusion shaft.

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Lichti teaches it is conventional in the art to utilize a protrusion shaft (See Figure 3 (The part located between (56) and (46) that touches (46))); and a target plate (See Figure 3 (46)) fixed to the protrusion shaft, the target plate being formed substantially flat (See Figure 3 (46)) and the target plate (See Figure 3 (46)) is a member different from the protrusion shaft (See Figure 3 (The part located between (56) and (46) that touches (46))).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the protrusion shaft taught by Lichti in the Magner device since it would provide improved stability of the target plate.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lichti in view of legal precedence and Magner in view of Lichti as applied to claim 1 above, and further in view of legal precedence.

Magner discloses the invention as recited in claim 17 above and further discloses the target plate (See Figure 3 (46)) is fixed to the protrusion shaft (See Figure 3 (Not numbered but clearly visible)) through a press fitting.

With regard to the limitation of "through a press fitting", a product by process claim which is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the two. See *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983).

Allowable Subject Matter

Claims 7-8, 12-16 are allowed.

Response to Arguments

Applicant's arguments filed 27 February 2004 have been fully considered but they are not persuasive.

In response to the Applicant's argument the protrusion shaft integral with the vane rotor provides significant advantages. The Examiner would like to point out that the Applicant in their Remarks stated the Lichti arrangement held together by the bolt 56 **may** cause a rotary shift that is attributable to the bolt 56 tightening the target wheel/plate 46. This argument is not found persuasive because the bolt may or may not cause a rotary shift in the target plate/protrusion shaft arrangement.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hirakata et al. (PN 6,378,358), Kako (PN 5,957,095) disclose similar valve timing control systems.

Any inquiry concerning this communication from the examiner should be directed to Examiner Jaime Corrigan whose telephone number is (703) 308-2639. The examiner can normally be reached on Monday - Friday from 8:30 a.m. – 6:00 p.m. 2nd Friday off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (703) 308-2623. The fax number for this group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

JC

Jaime Corrigan

Jaime Corrigan
Patent Examiner

May 13, 2004

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Thomas Denion
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